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Cell, Tumor, and Stem Cell Biology

Interleukin-23-Expressing Bone Marrow-Derived Neural Stem-Like Cells Exhibit Antitumor Activity against Intracranial Glioma

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Neural progenitor-like cells have been isolated from bone marrow and the cells have the ability of tracking intracranial tumor. However, the capacity of the cells to deliver molecules for activating immune response against intracranial tumor and the identity of cellular and molecular factors that are involved in such immune responses have yet to be elucidated. Here, we isolated neural stem-like cells from the bone marrow of adult mice. The isolated cells were capable of producing progenies of three lineages, neurons, astrocytes, and oligodendrocytes, *in vitro* and tracking glioma *in vivo*. By genetically manipulating bone marrow-derived neural stem-like cells (BM-NSC) to express a recently discovered cytokine, interleukin (IL)-23, the cells showed protective effects in intracranial tumor-bearing C57BL/6 mice. Depletion of subpopulation lymphocytes showed that CD8⁺ T cells were critical for the antitumor immunity of IL-23-expressing BM-NSCs and that CD4⁺ T cells and natural killer (NK) cells participated in the activity. Furthermore,

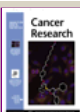
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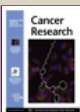
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the IL-23-expressing BM-NSC-treated survivors were resistant to the same tumor rechallenge associated with enhanced IFN- γ , but not IL-17, expression in the brain tissue. Taken together, these data suggest that IL-23-expressing BM-NSCs can effectively induce antitumor immunity against intracranial gliomas. CD8⁺ T cells are critical for such antitumor activity; in addition, CD4⁺ T cells and NK cells are also involved. (Cancer Res 2006; 66(5): 2630-8)

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 J. Hu, X. Yuan, M. L. Belladonna, J. M. Ong, S. Wachsmann-Hogiu, D. L. Farkas, K. L. Black, and J. S. Yu
Induction of Potent Antitumor Immunity by Intratumoral Injection of Interleukin 23-Transduced Dendritic Cells
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